to the reception committee, proposed by Mr. E. Windsor Richards and seconded by the secretary, Mr. Bennett H. Brough. The meeting was attended by more than 300 members, and an attractive programme of visits to metallurgical works in various parts of America was arranged.

THE INTERNATIONAL ELECTRICAL CONGRESS AT ST. LOUIS.

SINCE the article on the proceedings of the International Electrical Congress at St. Louis appeared in our issue of October 27, we have received the subjoined report to the congress of the chamber of Government delegates referred to on p. 639.

It will be noticed that the resolutions ask for the appointment by Governments of one international commission, at first of a temporary character, but which, it is hoped, may become permanent, to deal with electric units.

Report of the Chamber of Delegates.

At the meeting on September 13, after discussion in the chamber, two subcommittees were appointed to deal with the questions of international electromagnetic units and of international standardisation respectively.

At the meeting on September 15 the following report of the committee on international electromagnetic units was accepted and unanimously adopted :—

Committee on International Electromagnetic Units.

The subcommittee appointed September 13 begs leave to suggest that the chamber of delegates should adopt the following report :—

It appears from papers laid before the International Electrical Congress and from the discussion that there are considerable discrepancies between the laws relating to electric units, or their interpretations, in the various countries represented, which, in the opinion of the chamber, require consideration with a view to securing practical uniformity.

Other questions bearing on nomenclature and the determination of units and standards have also been raised, on which, in the opinion of the chamber, it is desirable to have international agreement.

The chamber of delegates considers that these and similar questions could best be dealt with by an international commission representing the Governments concerned. Such a commission might in the first instance be appointed by those countries in which legislation on electric units has been adopted, and consist of (say) two members from each country.

Provision should be made for securing the adhesion of other countries prepared to adopt the conclusions of the commission.

The chamber of delegates approves such a plan, and requests its members to bring this report before their respective Governments.

It is hoped that if the recommendation of the chamber of delegates be adopted by the Governments represented, the commission may eventually become a permanent one.

The following report was also received and unanimously adopted from the committee on international standardisation :—

Committee of the Chamber of Delegates on International Standardisation.

The committee of the chamber of delegates on the standardisation of machinery begs to report as follows :—

That steps should be taken to secure the cooperation of the technical societies of the world by the appointment of a representative commission to consider the question of the standardisation of the nomenclature and ratings of electrical apparatus and machinery.

If the above recommendation meets the approval of the chamber of delegates, it is suggested by your committee that much of the work could be accomplished by correspondence in the first instance, and by the appointment of a general secretary to preserve the records and crystallise the points of disagreement, if any, which may arise between the methods in vogue in the different countries interested.

It is hoped that if the recommendation of the chamber of delegates be adopted, the commission may eventually become a permanent one.

At the meeting on September 16 the following resolutions were unanimously adopted :—

"That the delegates report the resolution of the chamber as to electrical units to their respective Governments, and that they be invited to communicate with Dr. S. W. Stratton (Bureau of Standards, Washington, D.C.) and Dr. R. T. Glazebrook (National Physical Laboratory, Bushy House, Teddington, Middlesex, England) as to the results of their report, or as to other questions arising out of the resolution."

"That the delegates report the resolution of the chamber as to the international standardisation to their respective technical societies, with the request that the societies take such action as they may deem best to give effect to the resolution, and that the delegates be requested to communicate the result of such action to Colonel R. E. B. Crompton, Chelmsford, England, and to the president of the American Institute of Electrical Engineers, New York City."

THE NATIONAL ANTARCTIC EXPEDITION.

THE narrative of the National Antarctic Expedition, related by Captain Scott to an audience of about seven thousand people at the Albert Hall on Monday, was the first account of the work of the expedition given to the Royal Geographical Society since the *Discovery* returned home. Captain Scott made a general statement of the work of the expedition, referring particularly to the various sledging journeys—nine of which were made in the first season and six in the second season—for exploration to the south, west, and east; but his remarks were chiefly of the nature of descriptions of a magnificent collection of photographs of scenes and incidents in the areas visited. These pictures themselves constitute a unique record of Antarctic conditions, and with the results of meteorological, magnetic, hydrographic, biological, and geological observations make the expedition most notable in the history of polar exploration. An exhibition of the photographs taken by Lieut. Skelton, water colour sketches and coloured drawings by Dr. E. A. Wilson, and other objects of interest connected with the voyage of the *Discovery*, is now open at the Bruton Galleries, 13 Bruton Street, Bond Street, W.

At the end of the lecture the chairman, Sir Clements Markham, K.C.B., on behalf of the Royal Geographical Society, presented a gold medal to Captain Scott and silver medals to the officers and men. The gold medal of the Geographical Society of Philadelphia for 1904 was presented to Captain Scott by the United States Ambassador in the name of that society. The medal bears on one side a medallion of Dr. Elisha Kane, their own discoverer, in whose honour the society was organised, and on the reverse this inscription :—"For eminent geographical research. *Per mare et terram.* The Philadelphia Geographical Society. Incorporated 1803. Awarded to Captain Scott in the year 1904."

As the scientific work of the expedition will be described at subsequent meetings of the Royal Geographical Society, Captain Scott only made incidental reference to it, and added little to what has already appeared in these columns (vol. lxix., p. 543, April 7). The following brief summary of the lecture is, however, of interest in showing some of the incidents and inquiries of the expedition.

The Antarctic area was divided into four quadrants, of which the Ross quadrant was allotted to the British expedition. It was there that Sir James Ross in 1840 discovered the sea that bore his name. But Sir James Ross was in a sailing ship, and only saw things dimly and in the distance. The geographical problem was therefore in brief to find out what lay to the east, to the west and to the south of what Ross had seen. In addition to the geographical problem, there were many scientific ones connected with a region so little known. The principal of these was magnetism, and the course taken by the *Discovery* was especially adapted for a magnetic survey.

Accompanied by two other members of the expedition, Captain Scott left the ship for a southern journey early in November, 1902, and on December 29 arrived at a point in latitude 80° 17′, when they were obliged to retrace their

steps. Finally, the party returned safely to the ship, and found that the *Morning* relief ship had arrived in McMurdo Sound. Mr. Armitage made a journey to the westward with a large party. After one or two failures he found a good route to the main ice cap over the surface of a glacier of great length. He gradually rose in altitude until he arrived on the inland plateau at a height of 8900 feet, and was thus the first to penetrate into the interior of Victoria Land.

The expedition had hoped to accompany the *Morning* home, and it was not until the end of February, 1903, that this was seen to be impossible, because of the condition of the ice. They expected the ice in the bay in which they lay to break up, but unfortunately it got so late that there was only one thing for the *Morning* to do, and that was to return. She got home with a good deal of difficulty, but the *Discovery* was forced to remain a second winter.

Captain Scott next made a sledging expedition in a westerly direction, reaching his "furthest west" point on November 30, 1903. The party had reached the top of a mountain range some 7000 feet above the sea-level when a blizzard came on and prevented further movement for six days. The party then set out westward, rising another 1500 feet, and for another week advanced over a huge plain that extended as far as the eye could reach. The temperature was forty degrees below zero, and the lips, nostrils, and cheeks of the party were blistered by the incessant wind from the west. The rarefied air, too, had a great effect in reducing staying power. On this expedition they reached a very interesting spot—that at which the compass pointed south instead of north. They had reached for the first time the line of no variation lying between the South Pole and the south magnetic pole.

By the middle of December, 1903, all the sledging parties were ordered to be back, in order that an attempt might be made to free the *Discovery* from the ice by sawing out a channel. The attempt to clear a channel had to be abandoned, but on January 15 the *Morning* and the *Terra Nova* were sighted. They brought word that unless the *Discovery* could be freed it must be abandoned, and to obviate this hard necessity blasting operations were undertaken. But by the end of January the ice began to break up of its own accord, and by the middle of February there was a clear channel for the *Discovery*, which was then free to start on its return voyage.

MOUNT EVEREST: THE STORY OF A LONG CONTROVERSY.

THE highest mountain in the world is situated in a country from which Europeans have with few exceptions been jealously excluded; and the recent visit to the capital of Nepal of an experienced British surveyor, equipped with instruments and with full permission to use them, is an event of no small interest in the annals of Himalayan geography.[1] It is clear from Captain Wood's report that this event has been brought about by the personal intervention of Lord Curzon.

Surveyors have penetrated the Himalayas east and west of Nepal into Sikkim and Kumaon, and have from these points of view been enabled to observe a few of the Nepalese peaks; but from flanking stations the ranges of mountains are seen "end on," and the nearer peaks shut out the more distant from view. The knowledge that we possess of the heights and positions of the peaks of the Nepalese Himalayas has consequently been obtained from observations taken with theodolites at stations situated in the plains of Bengal and Oudh.

From maps of small areas we are able to estimate that the number of peaks existing in Himalayan regions, including Kashmir and Bhutan, probably exceeds 40,000, and that of these more than 10,000 are always clothed with snow. Such estimates, rough as they are, suffice to show that the problem which confronted the Indian Survey when it first undertook the determination of the positions and heights of the peaks of the Himalayas was not a simple one.

It is difficult now to discover how many of the 10,000 snow-peaks were known to the natives of India by name before the British commenced their survey. The number so named was certainly small, and possibly less than fifty. Not only were the two highest mountains of all without a name but many of the most conspicuous peaks throughout the whole length of the Himalayas were nameless. The few peaks that serve as landmarks to travellers on frequented thoroughfares have probably always had names, and the few that mark the sources of sacred rivers and indicate to weary pilgrims on distant plains the positions of the shrines that are their goals have for ages been recognised by names.

It is questionable whether some of the Hindu names now attaching to peaks were not given in the first instance by British surveyors; in the earlier days of the survey names were accepted from villagers more readily, perhaps, than would now be done. Even the celebrated name of Dhawlagiri, as attaching to a particular peak, is not altogether free from suspicion. The story of the controversy over Mount Everest shows how easy it is to find native names that have no existence in fact, and how hard it is to identify the precise peak even when a native name is current.

When 10,000 snow-peaks have to be fixed, and when but 50 of these have names, some system of classification has to be devised. The case is analogous to that of the stars; a few of the brighter stars have names of their own, the remainder are classified by constellations, and are designated by letters or numbers. The snow-peaks of the Himalayas are classified by areas, and are designated by Roman numerals or by letters with numbers attached; thus the highest mountain in the world is known in the official records as Peak XV, and the second highest is recorded as Peak K_2, both having been nameless at the time of their discovery.

The height of Peak XV, now better known as Mount Everest, is 29,002 feet, and that of K_2 is 28,250 feet. Sixty years ago Dhawlagiri, in Nepal, was considered the highest mountain in the world; Dhawlagiri is 26,795 feet high, and has since been found to be surpassed in height by six Himalayan peaks; of these K_2 is in Kashmir, and the other five, Everest (29,002), Kangchenjunga I (28,146), Kangchenjunga II (27,803), Makalu (27,790), and Peak T_{15} (27,000) are in or near Nepal.

The Discovery of Mount Everest.[1]—In 1848 trigonometrical surveyors commenced to build a line of survey stations along the plains of Oudh and Bengal from west to east, and to determine the positions of these stations in latitude and longitude by means of triangles observed with large theodolites. Sir George Everest had intended originally to carry the series along the mountains, but abandoned his design in consequence of the refusal of the Nepalese Government to allow the operations to enter their territories. Consequently, after crossing the hills of Kumaon, the stations were brought down into the plains near Bareilly, from which point they were carried for 800 miles through the deadly tracts which fringe the Himalayas. At almost every station the snowy range of Nepal was visible, and the northern horizon appeared broken by numbers of peaks. Just as some stars appear brighter to the eye than others, so do some snow-peaks against the sky-line appear loftier than others. The superior magnitude of certain stars may be due either to their greater diameter or their lesser distance, and the superior elevation of certain peaks may be due either to their greater height or their lesser distance. The most refined observations with the most perfect of instruments, if taken from a single station only, will furnish no clue as to whether a mountain-peak is conspicuous on account of its magnitude or on account of its nearness.

As the surveyors moved across Bengal from west to east they witnessed changes in the apparent positions of the peaks; the analogy of the stars no longer serves us, as owing to the great distances of the latter they appear to preserve their relative positions in the sky; but the case of mountain-peaks may be compared to what a traveller witnesses when he journeys by rail through a forest of pines—the nearer tree-trunks continually appear to pass between his eye and the more distant ones. As the surveyor moves across the plains parallel to the mountains he sees

[1] Report on the Identification and Nomenclature of Himalayan Peaks. By Capt. H. Wood, R.E., with a preface by Colonel Gore, C.S.I., R.E., late Surveyor General of India. (Published by Order of Colonel F. B. Longe, R.E., Surveyor General of India, 1904.)

[1] In order to appreciate the distance from which Mount Everest is visible, we have only to consider that if it stood in Snowdon's place, it would be seen from Land's End to Edinburgh and from Kent to Connaught.